

So how big was that fish?

Quick data analysis activity

BACKGROUND

The R/V Savannah from the Skidaway Institute of Oceanography, transported research staff from S.E.F.I.S., N.O.A.A. and S.C.D.N.R. on a mission to sample fish populations off the coast of Florida during a week in June 2011. A portion of the data collected on Black Sea Bass (*Centropristis striata*) and Red Snapper (*Lutjanus campechanus*) is provided for your analysis. Additional information about the participating organizations, vessel, and research can be found by following the links at the end of this activity.

MATERIALS

data set for 50 fish calculator Graph paper notebook paper ruler
colored pencils (optional) computer with spread sheet program (optional)

Before you begin **PREDICT**

1. Your teacher will give you a set of data for evaluation. For which species of fish has the data been collected? _____ How many fish are in your data set? _____

2. Look over the data for 1 minute. Estimate the average length and mass of the fish in your catch.

Average total length _____ Average mass _____

3. Describe what you think the relationship is between the length and mass of fish in your sample. Do they increase at the same or different rates?

ACTIVITY

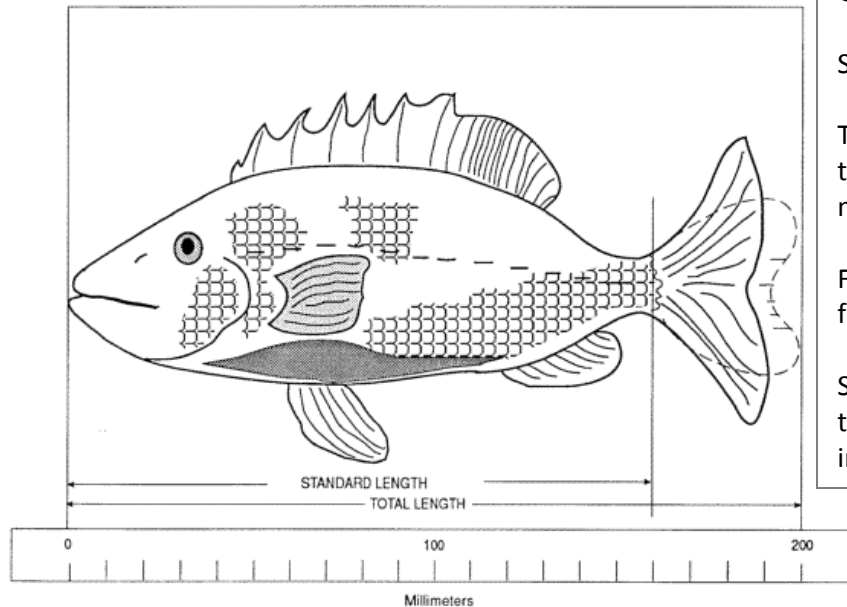
1. Using your own paper, find the mean, median and mode for both the length and mass of your fish data.
2. Graph the relationship between the mass and length of each fish. The mass should be plotted along the y-axis and the length along the x-axis. Join the dots with a smoothly curving line.

ANALYSIS

1. How well did your predictions compare to the true averages for fish length and mass?

2. Describe the relationship between the increasing mass of and length of the fish.

3. Compare the graph you created for your species with the graph for the other species. Describe one similarity and one difference between the graphs.



Cruise "SH1119" is the ID of the cruise

Coll = collection number, which is the unique identifier for each trap that was set on the cruise.

Gear ID of "324" = chevron fish trap.

SP_ID = Species ID

TL = total length (tip of snout to tip of tail when its squeezed together, in mm)

FL = fork length (tip of snout to the fork in the tail, in mm)

SL = standard length (tip of snout to the last vertebrae in spinal column, in mm)

Diagram from METHODS FOR SAMPLING FISH COMMUNITIES AS PART OF THE NATIONAL WATER-QUALITY ASSESSMENT PROGRAM By Michael R. Meador, Thomas F. Cuffney, and Martin E. Gurtz pg 25 <http://water.usgs.gov/nawqa/protocols/OFR-93-104/fishp25.html>

ADDITIONAL INFORMATION

N.O.A.A. National Oceanic and Atmospheric Administration <http://www.noaa.gov/>

Teacher at Sea blog (John Taylor-Lehman) <http://teacheratsea.noaa.gov/2011/taylor-lehman/>

S.E.F.I.S Southeast Fisheries Science Center
<http://www.sefsc.noaa.gov/labs/beaufort/ecosystems/sefis/>

R/V Savannah <http://www.skio.usg.edu/?p=resources/rvsavannah/index>

Skidaway Institute of Oceanography <http://www.skio.usg.edu/>

M.A.R.M.A.P. Marine Resources, Monitoring, Assessment, and Prediction
<http://www.dnr.sc.gov/marine/mrri/MARMAP/marmap.html>

S.C.D.N.R. South Carolina Department of Natural Resources <http://www.dnr.sc.gov/>

Cruise	Date	Coll	Gear_ID	SP_ID	TL	SL	FISH_WT
SH1119	40719	113157	324	black sea bass	342	275	601
SH1119	40719	113160	324	black sea bass	192	136	194
SH1119	40720	113164	324	black sea bass	360	273	616
SH1119	40719	113153	324	black sea bass	242	188	201
SH1119	40719	113153	324	black sea bass	239	182	194
SH1119	40719	113153	324	black sea bass	240	185	186
SH1119	40719	113153	324	black sea bass	240	185	200
SH1119	40719	113153	324	black sea bass	276	217	278
SH1119	40719	113153	324	black sea bass	252	198	239
SH1119	40719	113153	324	black sea bass	249	193	231
SH1119	40719	113153	324	black sea bass	239	186	191
SH1119	40719	113153	324	black sea bass	268	207	276
SH1119	40719	113153	324	black sea bass	219	176	147
SH1119	40719	113153	324	black sea bass	305	229	345
SH1119	40719	113153	324	black sea bass	276	218	335
SH1119	40719	113153	324	black sea bass	293	226	360
SH1119	40719	113153	324	black sea bass	260	196	267
SH1119	40719	113153	324	black sea bass	291	223	342
SH1119	40719	113153	324	black sea bass	231	181	187
SH1119	40719	113153	324	black sea bass	230	180	189
SH1119	40719	113153	324	black sea bass	235	182	178
SH1119	40719	113153	324	black sea bass	222	170	151
SH1119	40719	113153	324	black sea bass	233	175	189
SH1119	40719	113153	324	black sea bass	237	179	201
SH1119	40719	113153	324	black sea bass	263	200	271
SH1119	40719	113153	324	black sea bass	226	176	162
SH1119	40719	113153	324	black sea bass	237	185	215
SH1119	40719	113153	324	black sea bass	231	174	190
SH1119	40719	113153	324	black sea bass	257	201	227
SH1119	40719	113153	324	black sea bass	198	152	111
SH1119	40719	113153	324	black sea bass	267	208	315
SH1119	40719	113153	324	black sea bass	258	207	270
SH1119	40719	113153	324	black sea bass	259	197	261
SH1119	40719	113153	324	black sea bass	253	196	223
SH1119	40719	113153	324	black sea bass	249	187	231
SH1119	40719	113153	324	black sea bass	246	189	210
SH1119	40719	113153	324	black sea bass	284	203	262
SH1119	40719	113153	324	black sea bass	331	239	505
SH1119	40719	113153	324	black sea bass	271	208	293
SH1119	40719	113153	324	black sea bass	236	179	204
SH1119	40719	113153	324	black sea bass	305	219	357
SH1119	40719	113153	324	black sea bass	259	202	252
SH1119	40719	113153	324	black sea bass	326	246	399
SH1119	40719	113153	324	black sea bass	297	232	406
SH1119	40723	113229	324	black sea bass	175	136	79
SH1119	40723	113227	324	black sea bass	365	268	561
SH1119	40721	113179	324	black sea bass	302	211	234
SH1119	40719	113153	324	black sea bass	262	202	260
SH1119	40719	113153	324	black sea bass	280	218	323
SH1119	40719	113153	324	black sea bass	301	233	462

Cruise	Date	Coll	Gear_ID	SP_ID	TL	FL	SL	FISH_WT
SH1119	40720	113171	324	red snapper	435	410	351	1166
SH1119	40721	113179	324	red snapper	438	407	363	1229
SH1119	40721	113179	324	red snapper	429	401	359	1140
SH1119	40721	113179	324	red snapper	640	608	543	4386
SH1119	40721	113179	324	red snapper	567	532	470	2590
SH1119	40721	113179	324	red snapper	576	544	477	2885
SH1119	40721	113180	324	red snapper	535	497	424	2156
SH1119	40721	113181	324	red snapper	551	516	467	2343
SH1119	40721	113181	324	red snapper	595	558	507	3414
SH1119	40721	113181	324	red snapper	473	438	393	1541
SH1119	40721	113181	324	red snapper	544	507	452	2227
SH1119	40721	113187	324	red snapper	460	433	370	1635
SH1119	40721	113187	324	red snapper	520	492	423	2208
SH1119	40721	113187	324	red snapper	530	491	414	2201
SH1119	40721	113187	324	red snapper	490	460	412	1880
SH1119	40721	113188	324	red snapper	519	472	425	2113
SH1119	40721	113188	324	red snapper	566	518	470	2778
SH1119	40721	113188	324	red snapper	497	462	412	1967
SH1119	40721	113188	324	red snapper	502	466	416	1974
SH1119	40721	113190	324	red snapper	487	450	376	1732
SH1119	40721	113190	324	red snapper	531	496	407	1978
SH1119	40721	113190	324	red snapper	446	418	346	1383
SH1119	40721	113190	324	red snapper	472	442	366	1576
SH1119	40721	113191	324	red snapper	536	504	430	2178
SH1119	40721	113191	324	red snapper	487	454	377	1639
SH1119	40721	113191	324	red snapper	502	466	405	1907
SH1119	40721	113191	324	red snapper	602	559	480	3293
SH1119	40721	113191	324	red snapper	509	477	400	1906
SH1119	40721	113193	324	red snapper	585	556	493	3188
SH1119	40721	113193	324	red snapper	508	473	420	1919
SH1119	40721	113193	324	red snapper	493	458	407	1589
SH1119	40721	113193	324	red snapper	550	516	461	2506
SH1119	40721	113194	324	red snapper	540	513	435	2781
SH1119	40721	113194	324	red snapper	429	403	334	1172
SH1119	40721	113195	324	red snapper	442	417	367	1283
SH1119	40721	113196	324	red snapper	458	428	387	1423
SH1119	40722	113205	324	red snapper	567	530	446	2935
SH1119	40722	113215	324	red snapper	526	497	420	2118
SH1119	40722	113215	324	red snapper	580	544	465	2711
SH1119	40722	113215	324	red snapper	608	574	484	3808
SH1119	40722	113215	324	red snapper	536	497	419	2353
SH1119	40722	113216	324	red snapper	648	610	517	4186
SH1119	40722	113222	324	red snapper	593	554	472	3114
SH1119	40723	113226	324	red snapper	536	500	435	2260
SH1119	40724	113234	324	red snapper	621	575	494	3394
SH1119	40724	113236	324	red snapper	762	707	596	6705
SH1119	40724	113236	324	red snapper	668	622	534	4590
SH1119	40724	113242	324	red snapper	730	682	585	6143
SH1119	40724	113244	324	red snapper	484	446	380	1774
SH1119	40724	113244	324	red snapper	538	499	423	2641
SH1119	40724	113244	324	red snapper	520	484	408	1976